

## **APPENDIX E**

### **COMPARISON OF PLAN TO PORT OF LOS ANGELES NO NET INCREASE MEASURES**

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## **APPENDIX E**

### **COMPARISON OF ARB EMISSION REDUCTION PLAN STRATEGIES AND THE PORT OF LOS ANGELES NO NET INCREASE (NNI) REPORT**

In June 2005, the Port of Los Angeles released a No Net Increase (NNI) Report, which outlined 68 existing and potential strategies to mitigate emissions from growth in port operations. Although this report was not formally approved or implemented, many stakeholders have referenced the NNI strategies in their comments on ARB's Emission Reduction Plan. For that reason, we include a comparison of the strategies in each document.

The following five tables show the ARB plan strategies and the comparable NNI strategies for each of the five sectors associated with ports or the distribution of international cargo throughout California – ships, harbor craft, cargo handling equipment, trucks, and locomotives. The tables are meant for general comparison purposes only. The comparable strategies, in many cases, are not identical in scope. The ARB plan includes environmental goals beyond achieving 2001 emission levels, and therefore its strategies are often broader and more far-reaching than the comparable NNI measures.

Table E-1  
ARB Emission Reduction Plan Strategies and Comparable NNI Strategies  
Ships

| <b>Ships</b>   |   |
|--|---|
| <b>ARB Emission Reduction Plan Strategies</b>                            | <b>Comparable No Net Increase (NNI) Strategies</b>  |
| Actions Taken Since 2001   |   |
| Vessel Speed Reduction Agreement   | OGV2 Vessel Speed Reduction MOU   |
| U.S. EPA Main Engine Emission Standards                                  | OGV1 New Engine Standards for Ships   |
| U.S. EPA Non Road Diesel Fuel Requirements                               | No Comparable NNI Strategy  |
| Implementation Possible By 2010  |   |
| ARB Rule for Ship Auxiliary Engine Fuel                                  | OGV4 Auxiliary Engine Fuel Improvement Program<br>OGV8 Cleaner Fuels for Ship Auxiliary Engines<br>OGV11 Expanded Auxiliary Engine Fuel Improvement Program |
| Cleaner Marine Fuels   | OGV9 Main Engine Fuel Improvement Program<br>OGV12 Expanded Main Engine Fuel Improvement Program  |
| Emulsified Fuels   | OGV7 Low Emission Main Propulsion Engines   |
| Expanded Vessel Speed Reduction Programs                                 | OGV15 Expanded Vessel Speed Reduction Program   |
| Install Engines in New Vessels that Exceed IMO Standards                 | OGV7 Low Emission Main Propulsion Engines   |
| Dedicate the Cleanest Vessels to California Service                      | OGV6 Reroute Cleanest Ships   |
| Shore Based Electrical Power   | OGV3 Alternative Maritime Power<br>OGV13 Additional Auxiliary Engine Reductions for Frequent Callers  |
| Implementation Possible By 2015  |   |
| Extensive Retrofit of Existing Engines                                   | OGV14 Retrofit/Repower Requirements for Infrequent Callers<br>OGV13 Additional Auxiliary Engine Reductions for Frequent Callers                             |
| Highly Effective Emission Controls on Main Engines and Auxiliary Engines | OGV5 New Engine Standards for Category 3 Marine Engines<br>OGV7 Low Emission Main Propulsion Engines  |
| Sulfur Emission Control Area (SECA)                                      | OGV10 Sulfur Emission Control Area SECA (EPA, ARB)  |
| Expanded Use of Cleanest Vessels In California Service                   | OGV6 Reroute Cleanest Ships   |
| Expanded Shore Power and Alternative Controls                            | OGV16 Expanded Alternative Maritime Power   |
| Implementation Possible By 2020  |   |
| Full Use of the Cleanest Vessels in California Service                   | OGV6 Reroute Cleanest Ships<br>OGV7 Low Emission Main Propulsion Engines  |
| Maximum Use of Shore Power or Alternative Controls                       | OGV16 Expanded Alternative Maritime Power<br>OGV17 Additional In-Use Measures for Ships   |

Table E-2  
ARB Emission Reduction Plan Strategies and Comparable NNI Strategies  
Commercial Harbor Craft

| Commercial Harbor Craft   |   |
|---|---|
| ARB Emission Reduction Plan Strategies  | Comparable No Net Increase (NNI) Strategies   |
| Actions Taken Since 2001  |   |
| Incentives for Cleaner Engines  | HC4 Dredging Activities<br>HC5 TAC Harbor Craft Measures  |
| Low Sulfur Diesel Fuel Rule   | HC2 Clean Fuels for Harbor Craft<br>HC3 Early Implementation of Ultra Low Sulfur Diesel   |
| Implementation Possible By 2010   |   |
| ARB Rule to Clean Up Existing Engines <ul style="list-style-type: none"> <li>- Cleaner Engines</li> <li>- Cleaner Fuels</li> <li>- Add-On Emission Control Devices</li> </ul> | HC5 TAC Harbor Craft Measures<br>HC6 New Engine Standards for Category 1 and 2 Marine Engines<br>HC7 Emulsified Fuels<br>HC8 In-Use Harbor Craft Emission Reduction Measure<br>HC9 Repower Existing Harbor Craft<br>HC10 Retrofit Existing Harbor Craft |
| Shore Based Electrical Power  | HC11 AMP-Ready Staging Areas  |
| Implementation Possible By 2015   |   |
| New Engine Emission Standards   | HC6 New Engine Standards for Category 1 and 2 Marine Engines  |

  

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|---|---|
| Pre-2001 Actions                                      |   |
| U.S. EPA Standards for Harbor Craft (adopted in 1999) | HC1 New Engine Standards for Harbor Craft |

Table E-3  
ARB Emission Reduction Plan Strategies and Comparable NNI Strategies  
Cargo Handling Equipment

| <b>Cargo Handling Equipment</b>                        |   |
|--|---|
| <b>ARB Emission Reduction Plan Strategies</b>          | <b>Comparable No Net Increase (NNI) Strategies</b>  |
| Actions Taken Since 2001                               |   |
| Low Sulfur Diesel Fuel Rule                            | CHE2 Yard Tractor Modernization and ULSD Programs (2005 only for ULSD)<br>CHE3 Early Implementation of ULSD for CHE other than yard tractors (2005 only)  |
| EPA Tier 4 Emission Standards for New Off-road Engines | CHE1 Emission Standards for Heavy-Duty Nonroad Diesel Engines   |
| Stationary Diesel Engine Rule                          | No Comparable NNI Strategy  |
| Portable Equipment Rule                                | HC4 Dredging Activities (portable engines)  |
| Incentives for Cleaner Fuels                           | CHE4 Alternative Fuel yard Tractor Resolution (new leases)<br>CHE5 Emulsified Fuels<br>CHE6 TAC Measures – cleaner fuels, retrofits and repowers of existing equipment  |
| Implementation Possible By 2010                        |   |
| ARB Rule for Diesel Cargo Handling Equipment           | CHE2 Yard Tractor Modernization and ULSD Programs (2005 and 2006 ony)<br>CHE6 TAC Measures – cleaner fuels, retrofits and repowers of existing equipment<br>CHE7 Expanded Yard Tractor Modernization<br>CHE8 Enhanced CHE Modernization other than yard tractor<br>CHE9 Cargo Handling Equipment at Ports and Intermodal Rail Yards |
| ARB Rule for Gas Industrial Equipment                  | No Comparable NNI Strategy  |
| Implementation Possible By 2015                        |   |
| Upgrade to 85 Percent Diesel PM Control or Better      | CHE7 Expanded Yard Tractor Modernization<br>CHE8 Enhanced CHE Modernization other than yard tractor   |
| Implementation Possible By 2020                        |   |
| Zero or Near-Zero Emission Equipment                   | No Comparable NNI Strategy  |

Table E-4  
ARB Emission Reduction Plan Strategies and Comparable NNI Strategies  
Trucks

| <b>Trucks</b>   |  |
|---|--|
| <b>ARB Emission Reduction Plan Strategies</b>                               | <b>Comparable No Net Increase (NNI) Strategies</b>   |
| Actions Taken Since 2001  |  |
| 2007 New Truck Emission Standards   | HDV2 2007 On-Road Standards for Heavy-Duty Diesel Vehicles<br>HDV16 On-Board Diagnostics for Heavy-Duty Trucks   |
| Vehicle Replacement Incentives  | HDV3 Gateway Cities Truck Modernization Program  |
| Low Sulfur Diesel Fuel  | HDV5 Ultra-Low Sulfur Diesel Fuel (15 ppm)<br>HDV12 Early ULSD Implementation (through June 2006)  |
| Smoke Inspections for Trucks in Communities                                 | HDV6 Heavy-Duty Vehicle Inspection<br>HDV7 Periodic Smoke Inspection Program<br>HDV8 Augment Highway Inspections with Community-Based Inspections                                  |
| Truck Idling Limits   | HDV9 Reduced Truck Idling<br>HDV19 Idling Reduction Measures<br>HDV18 Electrified Truck Spaces   |
| Community Reporting of Violators  | No Comparable NNI Strategy   |
| Clean Transport Refrigeration Units   | HDV17 Transportation Refrigeration Units   |
| Low NOx Software Upgrade Rule   | HDV4 Engine Software Upgrade (or Low NOx Software Upgrade)   |
| Implementation Possible By 2010   |  |
| Port Truck Modernization<br>- Retire and Replace<br>- Repower<br>- Retrofit | HDV10 Expanded Truck Modernization Program<br>HDV13 Retrofit with Diesel Oxidation Catalysts<br>HDV14 Retrofit with Diesel Particulate Filters<br>HDV15 PM In-Use Emission Control |
| Enhanced Enforcement of Truck Idling Limits                                 | No Comparable NNI Strategy   |
| ARB International Trucks Rule   | HDV11 California Standards and Fleet Modernization for Mexican Trucks  |
| ARB Private Truck Fleets Rule   | HDV 10 Expanded Truck Modernization Program  |
| Implementation Possible By 2015   |  |
| Continued Port Truck Modernization  | See 2010 NNI comparable strategies for Port Truck Modernization above  |

  

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| Pre-2001 Actions                                 |  |
| 2004 New Truck Emission Standards (adopted 2000) | HDV1 2004 On-Road Standards for Heavy-Duty Diesel Vehicles |

Table E-5  
ARB Emission Reduction Plan Strategies and Comparable NNI Strategies  
Locomotives

| <b>Locomotives</b>  |  |
|---|--|
| <b>ARB Emission Reduction Plan Strategies</b>   | <b>Comparable No Net Increase (NNI) Strategies</b>   |
| Actions Taken Since 2001  |  |
| Low Sulfur Diesel Fuel Rule   | R2 ARB Diesel Fuel Used by Intrastate Locomotives<br>R3 Standards for Nonroad Diesel Fuel  |
| 2005 Statewide Railroad Agreement   | R10 Idling Controls for Switcher and Line Haul Locomotives<br>R11 Efficiency Improvement on In-Use Class 1 Rail Equipment  |
| Idle Enforcement Training   | R10 Idling Controls for Switcher and Line Haul Locomotives   |
| Implementation Possible By 2010   |  |
| Upgrade Engines in Switcher Locomotives   | R5 PHL Switcher Locomotive Modernization and ULSD Programs<br>R6 Ultra-Low Emission Switcher Locomotives: PHL<br>R7 Ultra-Low Emission Switcher and Line Haul Locomotives: Class 1 |
| Retrofit Diesel PM Control Devices on Existing Engines  | R7 Ultra-Low Emission Switcher and Line Haul Locomotives: Class 1  |
| Use of Alternative Fuels  | R7 Ultra-Low Emission Switcher and Line Haul Locomotives: Class 1<br>R9 ARB Diesel Fuel for Class 1 Railroad Locomotives   |
| Implementation Possible By 2015   |  |
| More Stringent National Requirements <ul style="list-style-type: none"> <li>- Tier 3 Emission Standards</li> <li>- On-board Diagnostics (OBD)</li> <li>- Rebuild Tier 0, Tier 1, and Tier 2 Engines to More Stringent Emission Standards</li> <li>- Idle Limiting Devices on New and Rebuilt Engines</li> </ul> | R8 Tier 3 Standards for New and Remanufactured Locomotives and Engines   |
| Concentrate Tier 3 Locomotives in California  | R7 Ultra-Low Emission Switcher and Line Haul Locomotives: Class 1  |
| Implementation Possible By 2020   |  |
| Continuation of 2015 Strategies   | See "By 2015" NNI strategies above   |
| Pre-2001 Actions  |  |
| Engine Standards for Locomotives (adopted 1998)   | R1 Tier 0, 1, and 2 Engine Standards   |
| 1998 Memorandum of Understanding for South Coast Air Basin  | R4 MOU in the South Coast Air Basin (1998)   |

\* NNI strategy R12, "*Electrification of the Alameda Corridor*," is not explicitly included in the ARB Emission Reduction Plan.